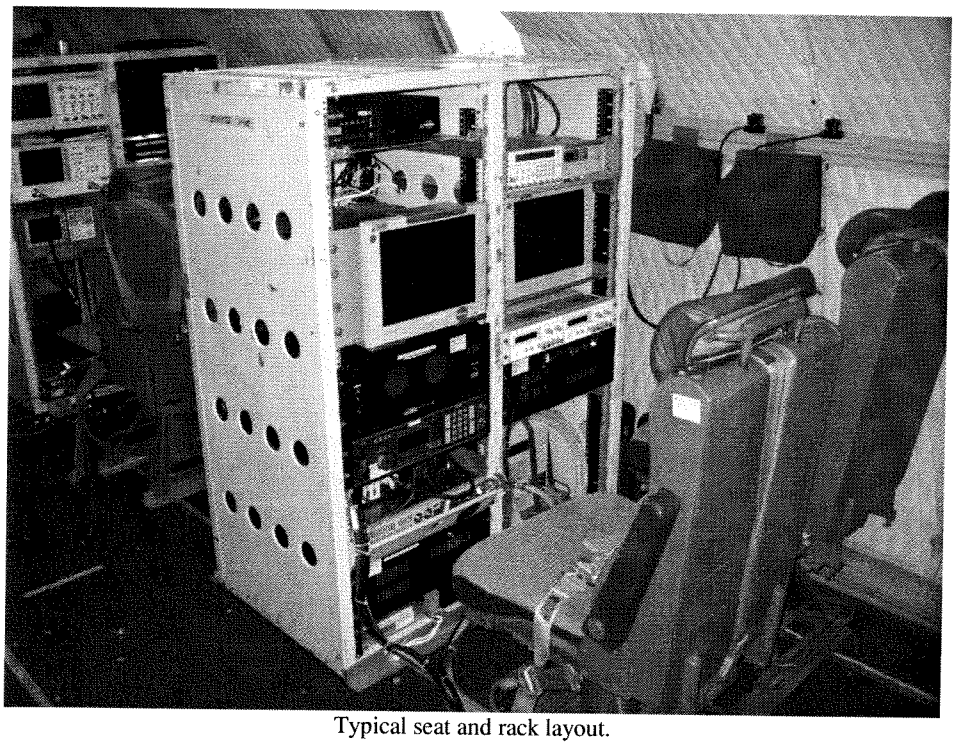
NASA P-3B Seat Statement of Work

Solicitation NNG10339285R, CLIN 001 & 002

Introduction:

NASA Goddard Space Flight Center's Wallops Flight Facility (WFF) operates a P-3B Orion (BUNO 152735) aircraft designated as N426NA. The aircraft has been extensively modified to meet the needs of the NASA Airborne Science Program community. This Statement of Work details specifications for the design, analysis, acquisition, testing, and acceptance of experimenter/passenger seats and refurbishment of existing flight station seats. Experimenter/passenger seats are typically used for experimenters to sit behind instrument racks or as standard passenger seats during transit operations. Pictured below is a typical layout of how current experimenter/passengers seats are oriented with respect to an instrument rack. The front edge of each seat is typically mounted no less than 15 inches from the face of the rack.



Typical seat and rack layout.

Appendix B (NASA GSFC WFF P3B Orion Layout) represents the layout of the aircraft. The specific work requirements are described in detail in section 5 of this document.

1.0 General Requirements:

1.1 Purpose

The contractor shall perform all necessary work (design, analysis, acquisition, manufacture, ground testing, and training) to provide experimenter/passenger seats and refurbish existing flight station seats (pilot, copilot, flight engineer and mission manager seats). Design, analysis, acquisition and manufacturing shall occur during the performance period after award of contract.

After contract award, NASA shall provide full access to the existing aircraft seats for the agreed installation period. The contractor is also able to make trips to the P-3 during the design and manufacturing phases for design verification and fit check purposes. Access request shall be made one week in advance to the project manager. Such availability is contingent upon operational and maintenance requirements and is at the discretion of NASA.

Test fit installation of seat assemblies upon delivery shall occur at the P-3 maintenance facility in Birmingham, Alabama no later than November 30, 2010. The final product for the experimenter/passenger seats shall comply with all applicable Federal Aviation Administration (FAA) Federal Aviation Regulation Part 25 Transport Aircraft design standards. The seats shall fit through the P-3B 26.5 inch wide main cabin door and fit a 31.5 inch wide seat track spacing (seat tracks mounts are 1 inch on center for each rail). Assemblies for test fitting shall be shipped to Alabama and shall be installed by NASA maintenance personnel.

The contractor shall provide up to 15 sets of 2 side by side seat assemblies (30 seats total).

The contractor shall refurbish 4 existing flight station seats.

All seats shall not require the need for electrical power.

This project is part of the American Recovery and Reinvestment Act (Recovery Act) of 2009 (ARRA).

1.2 Period of Performance

The period of performance for this contract is from date of award to November 30, 2010.

All initial design, analysis, tests and sample seat delivery shall be received / completed and accepted by NASA no later than September 30, 2010.

Final physical delivery of the selected number of seat assemblies to include functionality testing and training shall be delivered no later than November 30, 2010.

1.3 Purchase Options

The purchase shall consist of the following:
CLIN 001: Base Bid – 15 sets of experimenter/passenger seats

The estimated maximum quantity is 15 sets and a minimum of 10 sets of experimenter/passenger seats with deliveries scheduled by placing orders with the Contractor.

In addition to the Base Bid, the Government may elect to include the following option:

CLIN 002: Option #1 – Refurbishment of 4 existing flight station seats

1.4 Aircraft Systems Use

NASA shall assign a project manager to act as the single point of contact for day-to-day interaction as well as the monitor of the overall project timeline. The contractor shall only contact the NASA Contracting Officer's Technical Representative (COTR) or alternate COTR with questions and requests. NASA shall provide a response no later than 5 business days from initial contact concerning a question or request. The NASA COTR and alternate COTR for this installation shall be:

Contracting Officer's Technical Representative (COTR):
Ed Sudendorf – NASA Aircraft Office
NASA Wallops Flight Facility
Bldg. N-159 Hanger
Wallops Island, VA 23337
Phone: 757-824-1240
Fax: 757-824-2135
Cell: 757-894-3753

Alternate Contracting Officer's Technical Representative (COTR):
Anthony Guillory – NASA Aircraft Office
NASA Wallops Flight Facility
Bldg. N-159 Hanger
Wallops Island, VA 23337
Phone: 757-824-2161
Fax: 757-824-2135
Cell: 757-894-5967

1.5 Current Documentation Provisions

NASA shall also provide the contractor with full access to any applicable and available N426NA structural manual, and engineering analysis documentation. Certain documents shall only be available as scanned electronic copies.

2.0 Vendor Requirements:

2.1 Changes to Existing Aircraft Components or Structure

If during the design or test fitting process, the contractor indentifies deficiencies in, or required upgrades to, existing components or structure that may be necessary to interface with the new experimenter/passenger seats or refurbished flight station seats, the contractor shall contact NASA immediately.

All removed or replaced components, or subsystems thereof, remain the sole property of NASA. The relocation of any hardware shall be approved by NASA.

3.0 Quality Assurance:

3.1 Overall Quality

All analysis and installations shall meet NASA specific standards as outlined in Appendix A (548-RQMT-0001, P-3 Design Requirements) or in the absence of a NASA standard, Part 25 Federal Aviation Administration (FAA).

Offerors shall include a Quality Assurance Plan that details the offeror's plan of compliance with the NASA/FAA standards identified above. This plan shall be reviewed and approved by NASA prior to the commencement of this contract and incorporated as part of Section J, Attachment B of the contract.

4.0 Engineering and Review Deliverables:

4.1 Project Status Tracking

The contractor shall provide monthly progress reports detailing current status and progress toward schedule milestones. These reports shall be provided electronically (i.e. email) to the assigned NASA Project Manager and the Contracting Officer's Technical Representative (COTR).

4.2 Mechanical Engineering Analysis

All mechanical engineering analysis shall show positive Safety Margins with current NASA P-3 standards in accordance with 548-RQMT-0001: emergency landing loads, gust loads, aerodynamic loads (if applicable) and Factors of Safety values for the intended installation location.

4.3 Data Format

All technical data shall be provided in electronic format on CD or DVD.

4.4 Preliminary Design Review (PDR) data package:

The contractor shall present their design at a NASA Preliminary Design Review (PDR) and Critical Design Review (CDR) and shall receive NASA approval prior to the start of any manufacturing or fabrication. Within the scope of the original contract, the contractor shall comply with all action items assigned through the NASA review process. The contractor shall participate via teleconference for each of the reviews. The review should be no longer than 3 hours in duration and provided in writing/presentation and verbally.

NASA shall review and approve all mechanical analysis and installation instructions, including drawings, prior to aircraft installation. All mechanical drawings and models shall be supplied electronically. The formats are Autodesk AutoCAD 2009, Autodesk Inventor 2009 or earlier version of each of the specified programs. Upon acceptance, these items become the sole property of NASA.

The PDR date shall be completed within thirty (30) working days of the contractual start date. The PDR package is due three (3) working days prior to the scheduled review. The PDR data package shall include the most up-to-date version of the following:

- Preliminary models and/or drawings showing seats and installation of seats in the aircraft
- A list of structural and modal (if applicable) loads / values to be used for final analysis
- Preliminary structural analysis showing feasibility of modification
- Preliminary plan for the refurbishment of the flight station seats

4.5 Critical Design Review (CDR) data package:

The CDR date shall be completed within twenty (20) working days after the completion of PDR. The CDR package is due three (3) working days prior to the scheduled review. The CDR data package shall include the most up-to-date version of the following:

- Finalized model, manufacturing and installation drawings for the seat assembly
- Finalized engineering reports:
  - Mechanical
  - Modal (if required)
- Finalized plan for the refurbishment of the flight station seats
- Preliminary training plan for Maintenance personnel
- Preliminary Functionality/Ground Testing Plan

4.6 The NASA Airworthiness Process

NASA is required to perform a Configuration Review (CR) and Final Installation and Inspection Review (FIIR) as part of the NASA Airworthiness Process. These reviews are internal to NASA however; the contractor is required to attend via teleconference in both airworthiness reviews as action items from these reviews may be forwarded to the contractor for compliance within the scope of the original contract.

4.7 Final Data package:

The finalized data package shall be submitted to NASA after the successful completion of the Functionality/Ground Test and final test fit of seats to the aircraft upon delivery. This signifies the completion of this contract. This data package includes the following items in their final configuration:

- Complete set of manufacturing and installation drawings and models, as well as installation instructions and maintenance procedures (as required and outline in the above statement of work). All drawings and models shall be supplied electronically and in a format that can be opened with Autodesk AutoCAD 2009 or Autodesk Inventor 2009 or earlier version of the specified programs where applicable.
- Copies of all installation related analysis (structural, modal - if required, etc) - Native files of all drawings and analysis used for this installation.
- Data package shall be prepared in contractor's chosen format however; technical review submittals must be in PDF format.

5.0 Vendor Specific Hardware Deliverables:

5.1 Flight Hardware

All hardware and materials used shall be aircraft quality with component certificates provided to NASA, as applicable. Unless otherwise noted, component airworthiness and standards are set forth in Federal Aviation Regulation (FAR) Part 25 – Airworthiness Standards: Transport Category Airplanes.

5.1.1 Experimenter/Passenger Seats (Base Bid)

Experimenter/Passenger seat assemblies shall be comprised of two side by side seats that fit through a 26.5 inch wide main cabin door and mount to 31.5 inch wide seat track spacing (1 inch on center mounting holes). The seat assembly shall be centered between the seat track rails when mounted. Each seat shall contain a lap safety belt as well as 2 shoulder harnesses. Each seat assembly shall contain a holder for 2 oxygen generator bottles with each bottle easily reachable from a seated position (bottles are Government Furnished Equipment). Each seat assembly shall also contain

a holder for 2 inflatable life vest easily reachable from a seated position (life vests are Government Furnished Equipment). Each seat shall have a reclining feature as well as an aft mounted foot rest and aft mounted food tray. All armrests shall be able to be raised and lowered and be no higher than 26 inches off the floor. Each seat shall be covered with navy blue simulated leather material. Each seat shall also have an adjustable headrest.

5.1.2 Flight Station Seats (Option1, if exercised)
Flight station seat assemblies (pilot, copilot, flight engineer, and mission manager) shall be inspected and all worn or broken hardware shall be repaired or replaced. Mechanical functionality of the seats and assemblies shall be maintained or repaired to original design functionality. All seats shall have seat cushioning replaced. All seat safety harnesses shall be inspected and replaced if found deficient. Modification of the seat assemblies from original design intent shall not be allowed in order to maintain original airworthiness certification of the seats.

6.0 Training:

All training shall occur after the completion of the Functionality/Ground Test and final test fit installation by NASA is completed.

6.1 Personnel Training

The contractor shall provide maintenance personnel (total number not to exceed: 4 maintenance personnel) initial operational and maintenance training of all seats. The instructors, duration, and content of the training shall be selected by the contractor and performed in a manner so as to provide overall system understanding.

6.2 Maintenance Training

This maintenance training shall be accomplished upon final delivery and encompass any maintenance of the assemblies to include, but not limited to: assembly overview, repair and replacement, and preventative maintenance procedures.

7.0 NASA Acceptance of Vendor Deliverables:

7.1 Operating Manuals and Documentation

The contractor shall provide all applicable operating manuals, documentation, licensing materials, pertaining to the experimenter/passenger seat upgrade and flight station seat refurbishment to NASA.

7.2 Installed Equipment

The contractor shall provide the name, manufacturer, and part-number of each component and its supplier such that NASA may acquire components external to this contract.

7.3 Test and Repair Equipment

The contractor shall provide all specialized test and repair equipment (if any) needed for maintenance of all seat assembly components.

7.4 Hardware Warranty

All installed equipment, hardware, mounting structure, and support equipment shall be warranted under original manufacturer's warranty to best extent possible and shall prove to be free from manufacturing and /or installation defect prior to the time of seat assembly acceptance by NASA.

8.0 Contract Completion / NASA Acceptance:

8.1 Test and Evaluation / Aircraft Acceptance

The contractor shall develop and present to NASA for approval and acceptance a Functionality/Ground Test Plan to adequately prove the safety and operability of the seat assemblies. Ground testing of the seats shall comply with all Federal Aviation Administration testing standards for passenger seats. Functionality testing shall consist of proving the moveable parts of the seat assembly function as well as the final assembly mounts to the P-3 seat tracks. Acceptance of each seat assembly as operationally meeting these testing requirements shall be at the discretion of the NASA COTR. Any noted discrepancies will be noted by the COTR and shall be corrected before final acceptance. Flight station seats shall only be subject to functionality testing.

8.2 Final Acceptance

Final acceptance of all deliverables shall be upon the successful completion of the Functionality/Ground Test and final test fit installation by NASA and the delivery of the final data package and seat assemblies.